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EXAMINER

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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 10/824,029
Filing Date: April 14, 2004
Appellant(s): MERRY, RICHARD P.

Harold C. Knecht III
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed July 30, 2008 appealing from the Office action mailed January 10, 2008.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

7,179,429	Maus	02-2007
6,967,006	Wirth et al.	11-2005

2002/0025750

Dinwoodie

02-2002

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claims **30, 32-34, 37-42, 44-46, and 49** are rejected under 35 U.S.C. 102(e) as being anticipated by **Maus (US Patent No. 7,179,429)**.

Regarding Claim 30, Maus reference discloses a multilayer mat (**Figure 2, numeral 4 – compensating layer**) comprising:

an intumescent layer having opposite outer edges (**Figure 2, numeral 9 - border**), opposite ends (**Figure 2, numeral 5 – front & back**), a first major surface and a second major surface opposite the first major surface, said intumescent layer having an area A1 (**Figure 2, numeral 5 – swelling mat**);

a first non-intumescent layer facing the first major surface of said intumescent layer, said first non-intumescent layer comprising inorganic fibers and said first non-intumescent layer having opposite outer edges (**Figure 2, numeral 7 – border**), **opposite ends (Figure 2, numeral 6 – front & back)** an area A2 that is greater than area A1 (**Figure 2, numeral 6 – insulating mat**); and

a second non-intumescent layer facing the second major surface of said intumescent layer, said second non-intumescent layer comprising inorganic fibers, said second non-intumescent layer having an area A3 that is greater than area A1 (**Column 5, Line 13-22 – a number of compensating layers (4) and/or additional plies of the thermally insulating layer (6) which follow one another radially**)

wherein said intumescent layer is sandwiched between said first and second

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non-intumescent layers and positioned entirely within the area A2 of said first non-intumescent layer and the area A3 of said second non-intumescent layer, with at least one of the outer edges of said mat being free of intumescent material (**Figure 2, numeral 7**).

Regarding Claims 32, 33 and 34, the compensating mat of Maus would inherently have the claimed lengths and contact areas since the same insulating mat 6 is used.

Regarding Claim 37, Maus reference discloses the multilayer mat of claim 30, wherein said first non-intumescent layer has a first trough in a side facing said intumescent layer and said intumescent layer is positioned in the trough (**Figure 2, numeral 8 – inner region**).

Regarding Claim 38, Maus reference discloses the multilayer mat of claim 37, wherein said second non-intumescent layer has second trough on a side facing said intumescent layer, the second trough is aligned with the first trough, and said intumescent layer is positioned in the first and the second trough (**Column 5, Line 16**).

Regarding Claim 39, Maus reference discloses the multilayer mat of claim 33, wherein said intumescent layer has a width W1 that is less than W2, said intumescent layer has a length L1 that is substantially equal to L2, and said second non-intumescent layer contacts said first non-intumescent layer along at least one edge of said multilayer mat (**Figures 3, 5 and 6 – the multilayer mat wrapped around the honeycomb element on the length**).

Regarding Claim 40, Maus reference discloses the multilayer mat of claim 30, wherein said multilayer mat is free of intumescent material along at least one lateral outer edge of said multilayer mat **(Figures 1 and 2)**.

Regarding Claim 41, Maus reference discloses a pollution control device comprising:

an outer housing **(Figure 1, numeral 3 - casing)**;

a pollution control element **(Figure 1, numeral 2)**; and

a multilayer mounting mat **(Figure 2, numeral 4 – compensating mat)**

according to claim 30 positioned between said pollution control element and said outer housing **(Figure 1)**.

Regarding Claim 42, Maus reference discloses the pollution control device of claim 41, wherein said multilayer mat is free of intumescent material along at least one lateral outer edge of said multilayer mat **(Figures 1 and 2)**.

Regarding Claims 44 and 45, the compensating mat of Maus would inherently have the claimed surface areas and lengths since the same insulating mat 6 is used.

Regarding Claim 46, Maus reference discloses the pollution control device of claim 41, wherein said first non-intumescent layer contacts said second non-intumescent layer along at least one edge of said mat, said at least one edge being positioned at a gas inlet side of said pollution control device **(Figure 1, numeral 7)**.

Regarding Claim 49, Maus reference discloses the pollution control device of claim 45, wherein said intumescent layer has a length W1 that is less than W2, said intumescent layer has a length L1 that is substantially equal to L2, and said second non-intumescent layer contacts said first non-intumescent layer along at least one edge

of said multilayer mat (**Figures 3, 5 and 6 – the multilayer mat wrapped around the honeycomb element on the length**).

Claims 35, 47-48 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Maus (US Patent No. 7,179,429 B1) in view of Wirth et al. (WO 99/39086 – using US Patent No. 6,967,006 B1 as the US equivalent document)**.

Regarding Claims 35 and 47, Maus reference discloses the claimed invention of Claims 31 and 43 except for the intumescent layer is divided into at least two segments that are separated from each other. Wirth et al. reference teaches that it is known to use a layer of an individual mat consisting alternating of swelling mat section for expansion at high temperature and erosion-resistant fiber (**Wirth et al. - Figures 13 and 15 and Column 9, Line 14-17**). It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the design of Wirth et al., since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

Regarding Claim 48, Maus and Wirth et al. references disclose the pollution control device of claim 47, wherein said pollution control element has an elliptical cross-section and the segments of said intumescent layer are positioned over portions of said pollution control element with a smaller radius of curvature (**Wirth et al. – Figure 16, numeral 5 – swelling mat**).

Claim 36 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Maus (US Patent No. 7,179,429 B1) in view of Dinwoodie (US 2002/0025750 A1)**.

Regarding Claim 36, Maus reference discloses the claimed invention except for the intumescent layer has a thickness that is 5 to 25 percent of a total mat thickness. It would have been obvious to one having ordinary skill in the art at the time the invention was made to make the multilayer mat with the claimed thickness, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art (**Dinwoodie – Page 4, Para. [0040] – 10 to 50% of the total thickness of the composite mat**). *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

(10) Response to Argument

Appellant's arguments filed July 30, 2008 have been fully considered but they are not persuasive.

Regarding the first ground of rejection of claims 30, 32-34, 37-42, 44-46 and 49, appellant misinterprets Examiner's rejection by stating that "Examiner is taking the position that the opposite edge surfaces of the intumescent layer 5 are the major surface of the layer 5 and that, because the intumescent layer 5 is disposed between the opposite edges of the non-intumescent layer 6, there is a first and second non-intumescent layer respectively facing a first and second major surface of the intumescent layer 5, and the intumescent layer 5 is "sandwiched" between two non-intumescent layers".

The examiner does not only rely on the Figure 2 of **Maus (Patent No. 7,179,429 B1)** for the rejection, but also relies on Column 5, Lines 13-35 of the specification of Maus to teach the structure of the multilayer mat of the present claim 30. Figure 2 of Maus teaches the intumescent layer **5** (same as the claimed intumescent layer having

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an area A1) and a first non-intumescent layer **6** facing the first major surface of the intumescent layer 5 (same as the claimed non-intumescent layer having an area A2). The area of the non-intumescent layer 6 of Maus is greater than the area of the intumescent layer 5 and the intumescent layer 5 is positioned entirely within the area of the non intumescent layer 6 of Maus. Furthermore, Examiner relies on the teaching of Maus on Column 5, Lines 13-35 for the second non-intumescent layer facing the second major surface of the intumescent layer in which it teaches that a number of compensating layers 4 (which includes non-intumescent layer 6 and intumescent layer 5 as shown in Figure 2) and/or additional plies of the thermally insulating layer 6 which follow one another radially can be provided to improve thermal insulation, especially in the very high operating temperatures. Thus, the intumescent layer 5 is sandwiched in between the at least two non-intumescent layers 6 (same as the claimed non-intumescent layers having areas A2 and A3).

Regarding the second ground of rejection of Claims 35 and 47-48, appellant asserts that the Examiner erroneously presumes that Maus discloses the invention of claims 31 and 43 and the recitation of Wirth et al. does not cure the defect in the rejection of claim 31 and 43. The examiner believes that the Maus reference discloses all the limitations of claim 30 on which claims 31 and 43 depend as described in details above.

Regarding the third ground of rejection of claim 36, appellant asserts that Maus does not disclose, teach or suggest each and every feature recited in claim 30 and recitation of Dinwoodie does not cure this defect in the rejection. The examiner believes

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that the Maus reference discloses all the limitations of claim 30 on which claims 31 and 43 depend as described in details above. Also, appellant submits that the Examiner has failed to meet the USPTO's burden of proving a prima facie case of obviousness because appellant asserts that Dinwoodie discloses a mounting mat having a single intumescent layer bonded to a single non-intumescent layer in which the thickness of the intumescent layer is from "10 to 50% of the total thickness" while claim 36 recites a mat having at least an intumescent layer and two non-intumescent layers, with the intumescent layer having "a thickness that is 5 to 25 percent of a total mat thickness". Examiner disagrees with this assessment since the Maus reference discloses the structure of the mounting mat of claim 30 and Dinwoodie discloses a mounting mat having two layers with thickness of the intumescent layer being from 10 to 50% of the total thickness. A person of ordinary skill in the art would be motivated to make a mat using the Maus teaching combined with the layer thickness of the Dinwoodie teaching by either keeping the range of the intumescent layer from 5 to 25 percent of the total thickness of the mat or calculating the thickness of the intumescent layer and non-intumescent layer based on the two layer thickness mat of Dinwoodie to create the mat using the Maus teaching. The thickness of the intumescent layer of Maus in view of Dinwoodie is still within the range of 5 to 25 percent as recited in claim 36. For example, the thickness of the two layer mat of Dinwoodie is 10 μm , the thicknesses of the intumescent and non-intumescent layers are 1 and 9 μm respectively if using 10% of total thickness. Thus, when applying these thicknesses to Maus' teaching in which the thickness of each non-intumescent layer is 9 μm and the thickness of the intumescent

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layer is 1 μm , the thickness of the intumescent layer of Maus would be 5.2% total thickness of the whole mat.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/Huy-Tram Nguyen/
Examiner, Art Unit 1797

Conferees:

/Walter D. Griffin/
Supervisory Patent Examiner, Art Unit 1797

/Jennifer Michener/

QAS, TC1700